# PIONEERS IN INDUSTRIAL EQUIPMENT

**JAFFA** PIONEERS

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# WHO ARE WE

For over 20 years, our industrial gears have been turning to create a future where electricity can be distributed globally without concern for waste, thanks to our innovative engines that optimize energy consumption. We generate mechanical vibrations that create the ideal flow for our construction materials. With the latest software controlling our lathes, we can shape all types of metals. We irrigate gardens, treat water, and cool engines with our centrifugal pumps. Additionally, we contribute to building unique production lines that keep pace with global advancements by integrating digital realms into your industry.

# OUR VISION

We aim to create a future where industrial productivity is enhanced through automated control of all machinery and energy usage, in compliance with international standards that help preserve the environment and conserve energy.

# OUR MISI@N

Jaffa Pioneers strives to deliver exceptional industrial services and unique support solutions that help our clients achieve industrial success and enhance production lines at minimal cost. We offer high-quality services through a team of experienced experts.

# OUR VALUES

#### **©** CREDIBILITY

Providing high-quality, reliable services that meet our clients' needs and foster long-term relationships.

#### HUMAN RESOURCES

Employing and developing a skilled, highly experienced workforce to deliver top-tier industrial quality.

#### PRACTICAL EXPERIENCE

Bringing over 20 years of technical expertise in our field.



# COMMERCIAL DIVISIONS





## **ELECTRIC MOTORS**

JaFFa Pioneers supplies three-phase, high-efficiency electric motors from the IE series, compliant with electro-technical standards. These motors help conserve energy and protect the environment, featuring the highest quality standards due to their construction from aluminum and cast iron, which provides high reliability to meet all industrial needs.



#### PRODUCTS AND BRANDS:

We collaborate with the world's leading brands known for efficiency and international reliability, such as

# ABB OME SIEMENS marathon

#### STANDARD LOW VOLTAGE MOTORS:

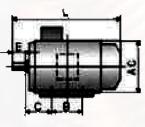
Designed with efficiency levels of IE3, IE4, and IE5, these motors meet the European Electrotechnical Commission standards. They are three-phase asynchronous motors constructed from aluminum or cast iron, ensuring long lifespan. Primarily used in industries such as oil, chemicals, metals, and cement, they can also be used with pumps, fans, compressors, and general machinery.

#### APPLICATIONS:

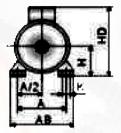
Used in compressors, conveyors, crushers, shredders, die-casting machines, fans, presses, heating, injection molding machines, and various power-operated tools and machinery.

#### ✤ TECHNICAL SPECIFICATIONS:

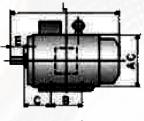
Designed with multi-voltage capabilities, operating in environment with temperatures ranging from -20°C to 65°C, and with a frequency of 50/60 Hz and protection class of IP55, extendable to IP66.



H63-90

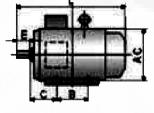


H63-71

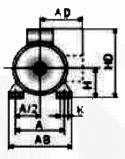


H100-132





H150-355



H80-355

#### 2.4 112 125 90 100 71 80 71 80 40

**FRAME WITH FEET AND END SHIELD WITHOUT FLANGE** 

00		125	02.0	1 100	50	17	40	, v	10.0	00		105	1/5	145	214	2/5
905 90L	2.4.6.8	140	70	100 125	56	24	50		20	90	10	180	195	155	250	315 340
100L		160	80	140	63			8		100		205	215	180	270	385
112M		190	95	140	70	28	60		24	112	12	230	240	190	300	400
132S 132M		216	108	140 178	89	38	80	10	33	132	<sup>1</sup> 2	270	275	210	345	470 510
160M 160L	1	254	127	210 254	108	42		12	37	160		320	330	255	420	615 420
180M 180L	1	279	139.5	241	121	48	110	14	42.5	180	15	355	380	280	455	700 740
200L	1	318	159	305	133	55	1	16	49	200		395	420	305	505	770
2255	4.8			286		60	140	18	53		1					815
225M	2 4.4.8	356	178	311	149	55	110	16	49	225	19	435	470	335	555	820 845
250M	2 4.6.8	406	203	349	168	60		18	53	225		490	510	370	615	615
2805	2 4.6.8		368		65 75	140	20	58 67.5		24					985	
280M	<u> </u>	457	228.5	419	190	65 75		18 20	58 67.5	280		550	580	410	680	1035
	4.0.0		<u> </u>	<u> </u>	<u> </u>	65	1	18	58							1160
3155	4.6.8.10			406		80	170	22	71							1210
	2				1	6	140	18	58			125	1.45	620		1290
315M	4.6.8.10	508	255	457	216	80	170	22	71	315		635	645	530	845	1300
21.61	2				1	65	140	18	58							1290
315L	4.8			508		80	170	22	71		28					1320
	2					75	140	20	67.5							1500
355M	4.6.8.10	610	305	560	254	95	170	25	86	355		730	710	655	1010	1530 1500
355L	2 4.6.8.10			630		75 95	140 170	20 25	67.5 86							1530

#### TECHNICAL DATA OF IE

	OutPut		Full load				75%	load	50% load				
Model			Current	Speed Eff		Power	Eff	Power	Eff	Power	lst art/Tn	lst/In	Tmax/Tn
	KW	HP	(A)	(r/min)	(%)	factor	(%)	factor	(%)	factor			
IE -631-2	0.18	0.25	0.53	2720	380V 50 <b>65.0</b>	HZ Synchro 0.80	onous Speed	0.75	60.0	0.69	2.2	5.5	2.2
IE -632-2	0.25	0.34	0.69	2720	68.0	0.81	65.1	0.76	62.0	0.70	2.2	5.5	2.2
IE -711-2	0.37	0.50	0.99	2740	70.0	0.81	69.0	0.76	66.0	0.71	2.2	6.1	2.2
IE -712-2	0.55	0.75	1.40	2740	73.0	0.82	71.2	0.70	70.0	0.72	2.2	6.1	2.3
IE -801-2	0.75	1	1.83	2830	75.0	0.83	73.0	0.77	71.0	0.74	2.2	6.1	2.3
IE -802-2 IE -905-2	1.1 1.5	1.5 2	2.58 3.43	2830 2840	77.0 79.0	0.84	75.1 77.0	0.78	73.0 74.9	0.73	2.2 2.2	7.0	2.3 2.3
IE -90L-2	2.2	2	4.85	2840	81.0	0.85	80.0	0.78	79.9	0.76	2.2	7.0	2.3
IE-100L-2	3.0	4	6.31	2870	83.0	0.87	82.0	0.80	81.1	0.77	2.2	7.5	2.3
IE-112M-2	4.0	5.5	8.10	2890	85.0	0.88	83.9	0.83	82.0	0.80	2.2	7.5	2.3
IE-132\$1-2	5.5	7.5	11.0	2900	86.0	0.88	84.2	0.83	83.8	0.80	2.2	7.5	2.3
IE-13252-2	7.5	10	14.9	2900	87.0	0.88	85.8	0.84	84.9	0.78	2.2	7.5	2.3
IE-160M1-2 IE-160M2-2	11 15	15 20	21.3 28.8	2930 2930	88.0 89.0	0.89	86.6 87.9	0.84	85.1 86.4	0.79	2.2 2.2	7.5 7.5	2.3 2.3
IE -160L-2	18.5	25	34.7	2930	90.0	0.90	89.8	0.86	86.8	0.80	2.2	7.5	2.3
IE -180M-2	22	30	41.0	2940	90.0	0.90	88.9	0.86	86.8	0.82	2.0	7.5	2.3
IE -200L1-2	30	40	55.5	2950	91.2	0.90	89.4	0.85	88.5	0.81	2.0	7.5	2.3
IE-200L2-2	37	50	67.9	2950	92.0	0.90	91.0	0.86	90.4	0.82	2.0	7.5	2.3
IE -225M-2	45	60	82.3	2970	92.3	0.90	90.5	0.85	89.7	0.82	2.0	7.5	2.3
IE -250M-2 IE -280S-2	55 75	75 100	101 134	2970 2970	92.5 93.0	0.90	91.3 91.9	0.85	91.0 91.5	0.82	2.0 2.0	7.5 7.5	2.3 2.3
IE -280M-2	90	125	160	2970	93.8	0.90	92.6	0.88	92.2	0.83	2.0	7.5	2.3
IE -3155-2	110	150	195	2980	94.0	0.91	93.1	0.87	93.0	0.83	1.8	7.1	2.2
IE -315M-2	132	180	233	2980	94.5	0.91	93.2	0.87	93.1	0.84	1.8	7.1	2.2
IE-315L1-2	160	220	279	2980	94.6	0.92	93.1	0.88	93.3	0.85	1.8	7.1	2.2
IE -315L2-2	200	270	348	2980	94.8	0.92	94.0	0.88	93.8	0.85	1.8	7.1	2.2
IE -355M-2	250	340	433	2980	95.3	0.92	94.8	0.88	94.0	0.85	1.6	7.1	2.2
E 2661.2	216	1 420 1	544	2020	064	0 02	05.0	0.00	04.0	0.95	14	71	22
IE -355L-2	315	430	544	2980	<b>95.6</b> 380∨ 50	<b>0.92</b> HZ Synchro	<b>95.0</b> onous Speed	<b>0.88</b> d 1500r/min	<b>94.0</b> (4 Poles)/6	0.85 0HZ	1.6	7.1	2.2
	315 0.12		544 0.42	2980 1310		0.92 HZ Synchro 0.72					1.6 2.1	7.1 5.2	2.2
IE -631-4 IE -632-4	0.12 0.18	0.16 0.25	0.42	1310 1310	380∨ 50 <b>57.0</b> <b>60.0</b>	HZ Synchro 0.72 0.73	onous Speed 56.1 58.5	i 1500r/min 0.69 0.70	(4 Poles)/6 <b>51.9</b> <b>56.7</b>	0HZ 0.55 0.59	2.1 2.1	5.2 5.2	2.2 2.2
IE -631-4 IE -632-4 IE -711-4	0.12 0.18 0.25	0.16 0.25 0.34	0.42 0.62 0.79	1310 1310 1330	380∨ 50 57.0 60.0 65.0	HZ Synchro 0.72 0.73 0.74	onous Speec 56.1 58.5 62.4	1 1500r/min 0.69 0.70 0.73	(4 Poles)/6 51.9 56.7 59.3	0HZ 0.55 0.59 0.59	2.1 2.1 2.1	5.2 5.2 5.2	2.2 2.2 2.2
IE -631-4 IE -632-4 IE -711-4 IE -712-4	0.12 0.18 0.25 0.37	0.16 0.25 0.34 0.50	0.42 0.62 0.79 1.12	1310 1310 1330 1330	380∨ 50 57.0 60.0 65.0 67.0	HZ Synchro 0.72 0.73 0.74 0.75	onous Speec 56.1 58.5 62.4 65.3	1 1500r/min 0.69 0.70 0.73 0.74	(4 Poles)/6 51.9 56.7 59.3 62.1	0HZ 0.55 0.59 0.59 0.63	2.1 2.1 2.1 2.1	5.2 5.2 5.2 5.2	2.2 2.2 2.2 2.2 2.2
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4	0.12 0.18 0.25 0.37 0.55	0.16 0.25 0.34 0.50 0.75	0.42 0.62 0.79 1.12 1.57	1310 1310 1330 1330 1390	380∨ 50 57.0 60.0 65.0 67.0 71.0	HZ Synchro 0.72 0.73 0.74 0.75 0.75	56.1 58.5 62.4 65.3 69.2	1 1500r/min 0.69 0.70 0.73 0.74 0.74	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6	0HZ 0.55 0.59 0.59 0.63 0.64	2.1 2.1 2.1 2.1 2.4	5.2 5.2 5.2 5.2 5.2 5.2	2.2 2.2 2.2 2.2 2.2 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4	0.12 0.18 0.25 0.37 0.55 .75	0.16 0.25 0.34 0.50 0.75 1	0.42 0.62 0.79 1.12 1.57 2.03	1310 1310 1330 1330 1390 1390	380∨ 50 57.0 60.0 65.0 67.0 71.0 73.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76	56.1 58.5 62.4 65.3 69.2 71.7	1 1500r/min 0.69 0.70 0.73 0.74 0.74 0.75	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0	0HZ 0.55 0.59 0.63 0.64 0.67	2.1 2.1 2.1 2.1 2.4 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0	2.2 2.2 2.2 2.2 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4	0.12 0.18 0.25 0.37 0.55	0.16 0.25 0.34 0.50 0.75	0.42 0.62 0.79 1.12 1.57	1310 1310 1330 1330 1390	380∨ 50 57.0 60.0 65.0 67.0 71.0	HZ Synchro 0.72 0.73 0.74 0.75 0.75	56.1 58.5 62.4 65.3 69.2	1 1500r/min 0.69 0.70 0.73 0.74 0.74	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6	0HZ 0.55 0.59 0.59 0.63 0.64	2.1 2.1 2.1 2.4 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2	2.2 2.2 2.2 2.2 2.2 2.3
IE -631-4 IE -632-4 IE -711-4 IE -711-4 IE -801-4 IE -802-4 IE -905-4	0.12 0.18 0.25 0.37 0.55 .75 1.1	0.16 0.25 0.34 0.50 0.75 1 1.5	0.42 0.62 0.79 1.12 1.57 2.03 2.89	1310 1310 1330 1330 1390 1390 1400	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         75.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0	0HZ 0.55 0.59 0.63 0.64 0.67 0.67	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 6.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10011-4 IE -10012-2	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78	1310 1310 1330 1330 1390 1390 1400 1400 1430	380∨ 50           57.0           60.0           65.0           67.0           71.0           73.0           75.0           78.0           80.0           82.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.69 0.70	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -100L1-4 IE -100L2-2 IE -112M-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80	1310 1310 1330 1330 1390 1390 1400 1400 1430 1430 1440	380∨ 50           57.0           60.0           65.0           67.0           71.0           73.0           75.0           78.0           80.0           82.0           84.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7	1310 1310 1330 1330 1390 1390 1400 1400 1430 1440 1440	380∨ 50           57.0           60.0           65.0           67.0           71.0           73.0           75.0           78.0           80.0           82.0           84.0           85.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.83	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70 0.73	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4 IE -132M-4	0.12 0.18 0.25 0.37 0.55 7.5 1.1 1.5 2.2 3.0 4.0 5.5 7.5	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6	1310 1310 1330 1330 1390 1390 1400 1400 1430 1440 1440 1440	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         87.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.83 0.84	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.69 0.70 0.70 0.70 0.73 0.74	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7	1310 1310 1330 1330 1390 1390 1400 1400 1430 1440 1440	380∨ 50           57.0           60.0           65.0           67.0           71.0           73.0           75.0           78.0           80.0           82.0           84.0           85.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.83	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70 0.73	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -90L-4 IE -100L1-4 IE -100L2-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4	0.12 0.18 0.25 0.37 0.55 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3	1310 1310 1330 1330 1390 1390 1400 1400 1430 1430 1440 1440 1440	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         88.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.78 0.79 0.81 0.82 0.83	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70 0.70 0.73 0.74 0.75	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -100L1-4 IE -100L2-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -180M-4 IE -180L-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2	1310 1310 1330 1330 1390 1400 1400 1430 1440 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.83 0.82 0.84	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.9	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.77 0.76	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -100L1-4 IE -100L2-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -180M-4 IE -180L-4 IE -200L-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6	1310 1310 1330 1330 1390 1390 1400 1400 1400 1430 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         90.5           91.0         92.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.83 0.82 0.84 0.84	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.9 90.8	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -180M-4 IE -180M-4 IE -2255-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9	1310 1310 1330 1330 1390 1390 1400 1400 1400 1430 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.5         92.5	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.87	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.87	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.3	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77 0.80	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160M-4 IE -180M-4 IE -180M-4 IE -180L-4 IE -225S-4 IE -225S-4 IE -225M-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 60	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7	1310 1310 1330 1330 1390 1390 1400 1400 1400 1430 1440 1440 1440 144	580√         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         90.5           91.0         92.5           92.8         92.8	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.87 0.87	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           91.5           91.9           92.4	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.83 0.83 0.82 0.84 0.84 0.84 0.87 0.87	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.3 90.9	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77 0.80 0.80	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -10012-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -180L-4 IE -180L-4 IE -225S-4 IE -225M-4 IE -250M-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9	1310 1310 1330 1330 1390 1390 1400 1400 1400 1430 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.5         92.5	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.87	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.87	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.3	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77 0.80	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160M-4 IE -180M-4 IE -180M-4 IE -180L-4 IE -225S-4 IE -225S-4 IE -225M-4	0.12 0.18 0.25 0.37 0.55 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 60 75	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103	1310 1310 1330 1330 1390 1390 1400 1400 1430 1430 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         90.5           91.0         92.5           92.8         93.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.87 0.87 0.87	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           92.7	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.87 0.87 0.89	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.3 90.9 91.2	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77 0.80 0.80 0.81	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -905-4 IE -10012-2 IE -112M-4 IE -112M-4 IE -132S-4 IE -132M-4 IE -160L-4 IE -160L-4 IE -180M-4 IE -225S-4 IE -225S-4 IE -225M-4 IE -280S-4 IE -280M-4 IE -280M-4 IE -315S-4	0.12 0.18 0.25 0.37 0.55 7.5 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55 75	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 60 75 100	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103 140 167 201	1310 1310 1330 1330 1390 1390 1400 1400 1430 1440 1440 1440 1440 144	380∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.0         92.5           92.8         93.0           93.8         94.2           94.5         94.5	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.88	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           93.0           93.3	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.78 0.79 0.81 0.82 0.83 0.83 0.82 0.83 0.82 0.84 0.84 0.84 0.87 0.87 0.89 0.86 0.87	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.9 91.2 91.6 92.8 92.8	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.77 0.76 0.77 0.80 0.80 0.81 0.80 0.81 0.81	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -905-4 IE -905-4 IE -905-4 IE -10012-2 IE -112M-4 IE -112M-4 IE -132S-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -180M-4 IE -225S-4 IE -225S-4 IE -225M-4 IE -280M-4 IE -280S-4 IE -315S-4 IE -315S-4 IE -315M-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55 75 90 110 132	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 60 75 100 125 150 180	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103 140 167 201 240	1310 1310 1330 1330 1390 1400 1400 1400 1430 1440 1440 1440 144	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         90.5           91.0         92.5           92.8         93.0           93.8         94.2           94.5         94.8	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.87 0.87 0.87 0.87 0.87 0.88 0.88	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           93.0           93.3           93.8	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.83 0.82 0.84 0.84 0.84 0.84 0.87 0.87 0.89 0.86 0.87 0.87	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.9 90.8 90.3 90.9 91.2 91.6 92.8 93.0	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.75 0.77 0.76 0.77 0.80 0.80 0.81 0.81 0.81	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -160L-4 IE -180M-4 IE -2255-4 IE -225M-4 IE -225M-4 IE -280M-4 IE -280M-4 IE -3155-4 IE -315S-4 IE -315M-4 IE -315L1-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55 75 90 110 132 160	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 50 60 75 100 125 150 180 220	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103 140 167 201 240 287	1310 1310 1330 1330 1390 1400 1400 1400 1430 1440 1440 1440 144	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.0         92.5           92.8         93.0           93.8         94.2           94.5         94.8           94.9         94.9	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.86 0.86 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.88 0.88 0.88 0.88 0.89	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           93.0           93.3           93.8           93.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.84 0.87 0.87 0.89 0.86 0.87 0.87 0.88	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.5 89.5 89.9 90.8 90.3 90.9 91.2 91.6 92.8 93.0 93.1	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.67 0.67 0.70 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.75 0.77 0.80 0.80 0.81 0.81 0.81 0.81	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -712-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -10012-2 IE -112M-4 IE -132S-4 IE -132S-4 IE -160M-4 IE -160L-4 IE -180L-4 IE -180L-4 IE -225S-4 IE -225S-4 IE -225S-4 IE -225M-4 IE -280S-4 IE -280S-4 IE -315S-4 IE -315S-4 IE -315L-4 IE -315L2-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55 75 90 110 132 160 200	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 50 60 75 100 125 150 180 220 270	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103 140 167 201 240 287 359	1310 1310 1330 1330 1390 1400 1400 1400 1430 1440 1440 1440 144	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.0         92.5           92.8         93.0           93.8         94.2           94.5         94.8           94.9         95.0	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.86 0.87 0.88 0.88 0.89 0.89 0.89 0.87 0.89 0.89 0.89 0.87 0.87 0.89 0.89 0.89 0.87 0.87 0.89 0.89 0.89 0.87 0.87 0.87 0.87 0.87 0.87 0.89 0.89 0.89 0.87 0.87 0.87 0.87 0.87 0.87 0.89 0.89 0.89 0.87 0.87 0.87 0.89 0.89 0.87 0.87 0.87 0.87 0.87 0.87 0.89 0.89 0.89 0.87 0.87 0.87 0.87 0.89 0.89 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.89 0.89 0.89 0.87 0	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           92.7           92.4           93.0           93.3           93.8           93.9           94.1	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.84 0.87 0.87 0.89 0.86 0.87 0.88 0.88 0.88	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.5 89.5 89.5 90.8 90.3 90.9 91.2 91.6 92.8 92.8 93.0 93.1 93.8	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.67 0.69 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.75 0.77 0.80 0.80 0.81 0.81 0.81 0.81 0.82	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
IE -631-4 IE -632-4 IE -711-4 IE -711-4 IE -712-4 IE -801-4 IE -802-4 IE -905-4 IE -905-4 IE -901-4 IE -10012-2 IE -112M-4 IE -1325-4 IE -132M-4 IE -160M-4 IE -160L-4 IE -160L-4 IE -180M-4 IE -2255-4 IE -225M-4 IE -225M-4 IE -280M-4 IE -280M-4 IE -3155-4 IE -315S-4 IE -315M-4 IE -315L1-4	0.12 0.18 0.25 0.37 0.55 .75 1.1 1.5 2.2 3.0 4.0 5.5 7.5 11 15 18.5 22 30 37 45 55 75 90 110 132 160	0.16 0.25 0.34 0.50 0.75 1 1.5 2 3 4 5.5 7.5 10 15 20 25 30 40 50 50 60 75 100 125 150 180 220	0.42 0.62 0.79 1.12 1.57 2.03 2.89 3.70 5.16 6.78 8.80 11.7 15.6 22.3 30.1 36.5 43.2 57.6 69.9 84.7 103 140 167 201 240 287	1310 1310 1330 1330 1390 1400 1400 1400 1430 1440 1440 1440 144	580∨         50           57.0         60.0           65.0         67.0           71.0         73.0           75.0         78.0           80.0         82.0           84.0         85.0           87.0         89.0           90.5         91.0           92.0         92.5           92.8         93.0           93.8         94.2           94.5         94.8           94.9         94.9	HZ Synchr 0.72 0.73 0.74 0.75 0.75 0.76 0.77 0.79 0.81 0.82 0.82 0.82 0.82 0.83 0.84 0.84 0.84 0.84 0.85 0.86 0.86 0.86 0.86 0.86 0.86 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.88 0.88 0.88 0.88 0.89	Speed           56.1           58.5           62.4           65.3           69.2           71.7           73.1           76.1           78.0           79.9           82.9           83.8           85.6           86.8           88.9           90.0           90.2           91.5           91.9           92.4           93.0           93.3           93.8           93.9	1500r/min 0.69 0.70 0.73 0.74 0.74 0.75 0.75 0.75 0.76 0.79 0.78 0.79 0.81 0.82 0.83 0.82 0.83 0.82 0.84 0.84 0.84 0.87 0.87 0.89 0.86 0.87 0.87 0.88	(4 Poles)/6 51.9 56.7 59.3 62.1 68.6 70.0 72.0 74.1 75.5 78.5 81.1 82.2 83.6 85.9 88.5 89.5 89.5 89.5 89.5 89.9 90.8 90.3 90.9 91.2 91.6 92.8 93.0 93.1	0HZ 0.55 0.59 0.63 0.64 0.67 0.67 0.67 0.67 0.67 0.70 0.70 0.70 0.70 0.73 0.74 0.75 0.75 0.75 0.75 0.77 0.80 0.80 0.81 0.81 0.81 0.81	2.1 2.1 2.1 2.4 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	5.2 5.2 5.2 5.2 5.2 5.2 6.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	2.2 2.2 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3

#### TECHNICAL DATA OF IE

	OutPut		Full load				75%	load	50% load				
Model	KW	HP C	Current (A)	Speed (r/min)	Eff (%)	Power factor	Eff (%)	Power factor	Eff (%)	Power factor	lst art/Tn	lst/In	Tmax/Tn
			( 9		<u>`</u>		onous Speed		. /				·
IE -711-6	0.18	0.25	0.74	850	56.0	0.66	53.1	0.66	51.0	0.65	1.9	4.0	2.0
IE .712.6	0.25	0.34	0.95	850	59.0	0.68	56.0	0.68	53.8	0.62	1.9	4.0	2.0
IE -801-6 IE -802-6	0.37	0.50	1.30	890 890	62.0 65.0	0.70	60.5 63.3	0.69	57.0 60.1	0.50	1.9 1.9	4,7 4,7	2.0 2.1
IE -905-6	0.55	1	2.29	910	69.0	0.72	67.3	0.72	66.3	0.45	2.0	5.5	2.1
1E -90L-6	1.1	1.5	3.18	910	72.0	0.73	70.2	0.72	68.0	0.55	2.0	5.5	2.1
IE-100L-6	1.5	2	3.94	940	76.0	0.75	74.0	0.75	71.0	0.54	2.0	5.5	2.1
IE-112M-6	2.2	3	5.60	940	79.0	0.76	77.1	0.77	75.1	0.60	2.0	6.5	2.1
IE -1325-6 IE-132M1-6	3.0	4	7.40 9.80	960 960	81.0 82.0	0.76	78.9 80.0	0.77	76.1 77.5	0.60	2.1 2.1	6.5 6.5	2.1 2.1
IE-132M2-6		7.5	12.9	960	84.0	0.77	82.1	0.77	80.1	0.60	2.1	6.5	2.1
IE -160M-6	7.5	10	17.0	970	86.0	0.77	83.4	0.77	82.4	0.60	2.0	6.5	2.1
IE -160L-6	11	15	24.2	970	86.5	0,78	86.6	0.78	84.8	0.61	2.0	6.5	2.1
IE -180L-6 IE -200L1-6	15	20 25	31.6 38.6	970 970	89.0 90.0	0.81	88.1 89.1	0.82	86.3 87.4	0.63	2.0 2.1	7.0	2.1 2.1
IE -20012-6	22	30	44.7	970	90.0	0.83	89.8	0.82	88.5	0.68	2.1	7.0	2.1
IE -225M-6	30	40	59.3	980	91.5	0.84	89.2	0.84	88.8	0.69	2.0	7.0	2.1
IE -250M-6	37	50	71.0	980	92.0	0.86	90.5	0.86	89.1	0.75	2.1	7.0	2.1
IE -2805-6 IE -280M-6	45	60 75	86.0 105	980 980	92.5 92.8	0.86	90.8 90.5	0.86 0.86	90.1 90.1	0.79	2.1	7.0	2.0 2.0
IE -3155-6	75	100	141	990	93.5	0.86	92.5	0.86	91.8	0.20	2.0	7.0	2.0
IE -315M-6	90	125	169	990	93.8	0.86	92.6	0.86	91.9	0.76	2.0	7.0	2.0
IE -315L1-6	110	150	206	990	94.0	0.86	93.0	0.86	92.1	0.77	2.0	6.7	2.0
IE-31512-6	132	180	244	990	94.2	0.87	93.3	0.87	92.8	0.78	2.0	6.7	2.0
IE-355M1-6 IE-355M2-6		220	292	990 990	94.5 94.7	0.88 0.88	93.6 93.8	0.88	93.0 93.1	0.79	1.9	6.7 6.7	2.0
IE -3551-6	250	340	455	990	94.9	0.88	94.0	0.88	93.5	0.81	1.9	6.7	2.0
				380\			ous Speed 7		,				
IE -801-8	0.18		0.88	630	51.0	0.61	46.4	0.52	42.1	0.45	1.8	4.0	1.9
IE -802-8 IE -905-8	0.25	0.34	1.15	640 660	54.0 62.0	0.61	48.5	0.54	43.2 53.3	0.45	1.8 1.8	4.0	1.9 1.9
IE -90L-8	0.55	0.75		660	63.0	0.61	58.5	0.58	54.4	0.44	1.8	4.0	2.0
IE-100L1-8	0.75	1	2.53	690	71.0	0.67	67.2	0.63	63.4	0.45	1.8	4.0	2.0
IE - 100L2-8	1.1	1.5	3.32	690	73.0	0.69	71.5	0.61	69.7	0.48	1.8	5.0	2.0
IE -112M-8 IE -1325-8	1.5	2	4.50 6.00	680 710	75.0 78.0	0.69	73.8	0.64	72.7 76.2	0.48	1.8 1.8	5.0 6.0	2.0 2.0
IE-132M-8	3.0	4	7.90	710	79.0	0.73	78.5	0.62	77.3	0.50	1.8	6.0	2.0
IE-160M1-8	4.0	5.5	10.3	720	81.0	0.73	79.8	0.63	79.1	0.51	1.9	6.0	2.0
IE-160M2-8	_	7.5	13.6	720	83.0	0.74	82.2	0.61	81.8	0.53	2.0	6.0	2.0
IE -160L-8 IE -180L-8	7.5	10	17.8	720	85.5 87.5	0.75	85.0 86.1	0.63	84.4 85.2	0.54	2.0 2.0	6.0 6.6	2.0 2.0
IE -2001-8	15	20	34.1	730	88.0	0.76	87.2	0.66	86.4	0.56	2.0	6.6	2.0
IE -2255-8	18.5	25	40.6	730	90.0	0.76	89.4	0.68	88.2	0.57	1.9	6.6	2.0
IE -225M-8	22	30	47.4	740	90.5	0.78	89.6	0.69	88.6	0.58	1.9	6.6	2.0
IE -250M-8 IE -2805-8	30	40 50	64.0	740	91.0	0.79	90.0	0.69	89.1	0.58	1.9	6.6	2.0
IE-280M-8	45	60	78,0 94.0	740	91.5 92.0	0,79 0.79	91.2 91.8	0,71 0.75	90,1 90,8	0.60 0.61	1,9 1,9	<u> </u>	2.0 2.0
IE -3155-8	55	75	111	740	92.8	0,81	91.9	0.78	91.0	0,64	1.8	6.6	2.0
IE-315M-8	75	100	151	740	93.0	0.81	92.9	0.78	91.5	0.65	1.8	6.6	2.0
IE -315L1-8 IE -315L2-8	90	125 150	178 217	740	93.8	0.82	92.9	0.76	91.7	0.70	1.8	6.6	2.0
IE-355M1-8		180	261	740	94.0 93.7	0.82	93.1 93.1	0.78	<u>92.9</u> 92.9	0.71	1.8 1.8	6.A 6.A	2.0 2.0
IE-355M2-8		220	313	740	94.2	0.82	93.2	0.79	93.0	0.71	1.8	6.4	2.0
IE -355L-8	200	270	388	740	94.5	0.83	93.8	0.79	93.3	0.72	1.8	6.4	2.0
15 2166 10	1.45	40	100				Is Speed 600					4.0	
IE -3155-10 IE-315M-10		60 75	100	590 590	91.5 92.0	0.75	90.5 90.9	0.65	80.2 80.1	0.55	1.5	6.2 6.2	2.0 2.0
IE-315L1-10		100	162	590	92.5	0.76	91.0	0.65	80.2	0.57	1.5	6.2	2.0
IE-31512-10	90	120	191	590	93.0	0.77	91.2	0.67	80.2	0.58	1.5	6.2	2.0
IE-355M1-1	_	150	230	590	93.2	0.78	92.0	0.68	80.4	03.0	1.3	6.0	2.0
IE-355M2-10		180	275 334	590 590	93.5 93.5	0.78	92.5 92.5	0.69	80.1 80.1	0.61	1.3	6.0 6.0	2.0 2.0
12-0000-10	100	1210		1 3/0	70.5	0.70	72.5	0.70	00.1	0.02	1.5	0.0	4.0

#### ✤ WHY ARE WE UNIQUE?

- -Compliant with IEC European standards.
- Available in all efficiency levels to optimize energy consumption and protect the environment.
- Lightweight.
- Easy to install and maintain.
- High protection.
- Low noise.
- Good reliability.
- High efficiency with low energy consumption.
- Overall structure made of high-quality iron with external frame ribs for excellent cooling capacity.



This series from Jaffa Pioneers is known for its high efficiency, capable of rapid braking after a power outage and immediate braking by changing the wire connection in the terminal box. This electromagnetic motor is suitable for machines that require quick stops, precise positioning, and forward-and-reverse operation to prevent slippage.

#### OUR PRODUCTS:

The electromagnetic brake motor we produce is characterized by low noise and reliable braking. Its electrical performance, installation dimensions, IP55 protection class, and F insulation class are identical to those of the IE series motors, with the brake system enhanced accordingly.

#### APPLICATIONS:

This series of motors is used in machinery and drive equipment requiring quick braking and can be widely applied to lathes, packaging machines, construction machinery, gear reducers, and more.

#### **BRAKE MOTORS STAND OUT DUE TO:**

- Low noise level.
- Applicable to a variety of power supplies.
- Special internal structure with a high-power brake system.
- Ability to manually control the brake in emergencies and power outages.



#### **GEAR MOTORS**

Gear motors represent complete power systems consisting of an electric motor and a gear reduction unit integrated into a single, easy-to-install and configure unit. The gear mechanism is a simple, integrated system that can alter the motor's speed, direction, and torque. Gear motors are designed to reduce final speed while increasing torque. The primary advantage of using gear motors lies in their block construction design, which simplifies installation and connection with various types of machinery. Our extensive range of high-quality gear motors includes worm gears, straight gears, helical gears, bevel gears, and more, available in capacities starting from 0.18 kW and above.

#### OUR PRODUCTS AND BRANDS:

Our products include top international brands that comply with European standards, such as



#### ✤ WE HANDLE MAJOR AND WIDELY USED GEAR TYPES, INCLUDING:

- WS WSF WSA WSAF.
- WK WKF WKA WKAF.
- NMRV.
- WR WRF.
- MR MRF.

#### **O** APPLICATIONS:



These applications include elevators, lifts, medical tables, cranes, robots, and garage door openers, where the goal is to achieve high power at low speeds. Generally, gear motors are used in various integration processes to derive significant power from relatively small inputs.

#### **WHY WE ARE UNIQUE:**

- Our gear motors are based on a block construction design, making them adaptable to all types of motors and power inputs.
- High transmission efficiency, with a single unit achieving up to 96% efficiency.
- Various installation methods, including horizontal mounting in any position, edge mounting, vertical installation, and more.
- Made from high-quality materials.
- Ensures ease of operation and maximum efficiency through diverse designs suitable for both forward and reverse rotation.





### **VIBRATORS:**

JaFFa Pioneers aims to supply electric rotary vibrators that use electromagnetic induction or electric

motors to produce mechanical vibrations. These vibrators are characterized by their strength, durability, energy efficiency, and quieter operation compared to other types, making them ideal for a variety of applications. These include transporting and discharging containers of wet and sticky materials, maintaining the flow of bulk materials, and increasing their strength and pressure, in industries such as food processing, chemicals, and general contracting.

#### OUR PRODUCTS AND BRANDS:

## 

We offer a specialized series of AB vibrators that deliver high vibration strength with frequencies ranging from 900 to 3600 RPM, making them suitable for both light and heavy applications. They feature high protection against dust and water (IP65) and are constructed from corrosion and rust-resistant steel and iron. These vibrators are used in industrial applications to enhance transportation, sorting, and packaging processes.

#### **OUR PRODUCTS AND BRANDS:**

**High Vibration Strength:** Delivers powerful vibrations that improve the efficiency of material handling and sorting processes.

**Energy Efficiency:** Designed to be energy-efficient, helping to reduce operational costs.

**Durability and Longevity:** Constructed from high-quality materials to ensure durability and long service life in harsh industrial environments.

**Ease of Installation and Maintenance:** Engineered for easy installation and maintenance, saving time and effort for users.





As pioneers in water pump supply, we provide pumps according to the highest international standards, ensuring enhanced energy efficiency and facilitating work protection systems under various operational conditions. We guarantee quality and reliability across a wide range of



industrial electric pumps, including centrifugal and industrial water pumps, which are used in various industries such as petrochemicals, oil and gas, wastewater treatment, agriculture, and cooling plants.

PEDROLLO" (( LOWARA Figmmetta) WILO

#### OUR PRODUCTS:

Single-impeller centrifugal pumps: Designed for civil and agricultural use. Their high-efficiency levels and capability for continuous operation make them an ideal choice for furrow and sprinkler irrigation, in addition to drawing water from lakes, rivers, and wells. They are also suitable for a wide range of industrial applications



that require substantial flow rates at medium-low head pressures.

#### Close-coupled centrifugal pumps:

- Close-coupled centrifugal electric pumps.
  Used For clean water free from abrasive particles liquids that will not damage the pump's components.
  Applications
- Water supply Pressurization Irrigation -Power washing systems - Firefighting systems -Industrial applications - Agriculture applications.

Installation should be carried out in well-ventilated indoor or protected areas.

#### Vertical multi-stage centrifugal pumps:

Compact and cost-effective vertical multistage centrifugal pumps suitable for water supply, clean liquids, and pressurization in domestic, civil, and agricultural systems, as well as irrigation.

#### Coupled centrifugal pumps:

Specifications: Standard centrifugal pumps with support - Designed for transporting clean water free of abrasive particles and liquids that do not cause damage to pump components.

Applications: Water supply networks - Pressure boosting - Irrigation -Firefighting systems - Industrial applications - Agricultural applications -Civil, industrial, and agricultural applications - Air conditioning, cooling, heating, and circulation systems - clean liquids, and pressurization in domestic, civil, and agricultural systems, as well as irrigation.







## ACCESSORIES:

We excel in enhancing and optimizing the functionality of machinery and mechanical equipment by offering a diverse range of ancillary components and equipment, such as:



# TECHNICAL DIVISION

#### AUTOMATION DIVISION

## ABB SIEMENS CUMARK Schneider

Industrial process control technology utilizes programmed commands to perform tasks automatically while managing feedback to ensure proper performance. This technology is effective for controlling electric motors and other equipment, allowing for adjustments in energy usage and adaptation to varying load requirements, leading to reduced operational costs and extended equipment lifespan.

#### APPLICATIONS OF AUTOMATION:

Control of variable-speed motors - Encoders - Short message services - Pressure reducers - Custom motor control - Various industrial applications.

#### WHY WE ARE UNIQUE:

This technology offers several distinctive features, including:

- The foundation for controlling production lines and machinery to achieve desired outcomes.
- Control over energy usage methods.
- Adaptation to varying load requirements.
- Extension of equipment lifespan.
- Cost savings.

#### PRODUCTS

• Electrical panels: are crucial components in any electrical system, responsible for directing, distributing, and controlling power across various industrial, commercial, and residential applications. These panels include a range of electrical devices and components that organize, distribute, monitor, and protect electrical systems. They encompass several main types, including distribution panels, control panels, electrical switchboards, protection and measurement panels, and solar panels. It is essential for electrical professionals to handle these panels with a scientific and practical approach to ensure optimal operation and safe maintenance.

#### MAIN TYPES OF ELECTRICAL PANELS:

Electrical Distribution Panels
 Electrical distribution panels are advanced systems used to distribute
 electrical power from a main source to multiple sub-circuits. These panels
 are essential for ensuring safe and reliable electricity distribution across
 various applications.

#### PRODUCTS:

#### 1. Low Voltage Distribution Panels:

Used in residential, commercial, and industrial applications.

#### Features:

High safety standards - Flexible design - High efficiency - Distributes electricity up to 1000 volts - Compliant with European standards.

#### 2. Medium Voltage Distribution Panels:

Used in substation distribution and large industrial operations. Includes:

Main distribution panels- Sub-distribution panels - Control and protection panels. - Transfer panels.

Features: High safety standards - Flexible design - High efficiency - Distributes electricity at varying voltages - Compliant with European standards.

#### CONTROL PANELS:

 Control panels are integrated systems used to manage production processes. They consist of various electronic and electrical components that enable effective monitoring, regulation, and operation of equipment and processes.

#### PRODUCTS:

Programmable Logic Controller (PLC) Panels: Control the execution of programmed instructions and interact with input and output devices.

#### Motion Control Panels:

Manage the speed of motors and axes in industrial processes.

#### **Process Control Panels:**

Monitor and regulate complex industrial processes.

#### **Power Control Panels:**

Distribute and protect electrical power in industrial systems.

#### Automation Control Panels:

Include intelligent control systems based on artificial intelligence and machine learning technologies.

#### © ELECTRICAL SWITCHBOARDS:

• Electrical switchboards are systems that control the distribution of electrical power and the operation of electrical devices across a range of industrial, healthcare, mining, and oil and gas applications

#### **O** TYPES:

Generator Transfer Panels:

Provide backup power generation during electrical outages and enable rapid operation.

- Panelboards Mounted on Assemblies:
   Offer enhanced safety, intelligence, and sustainability for projects of any size.
- Individually Mounted Switchboards:

Feature individually mounted circuit breakers and a robust structure designed to withstand adverse effects from electrical faults.

Measurement Switchboards:

Used in commercial construction markets, known for their ease of installation without specialized equipment.

#### ✤ INVERTER (VFD):

• A Variable Frequency Drive (VFD) is a semiconductor-based device that operates with variable voltage to control the speed of an electric motor by adjusting the frequency and voltage of the incoming power supply. It also facilitates smooth motor start-up and stop. The VFD is composed of four main sections: the rectifier circuit, the filtering circuit, the inverter, and the control circuits.



#### • Applications:

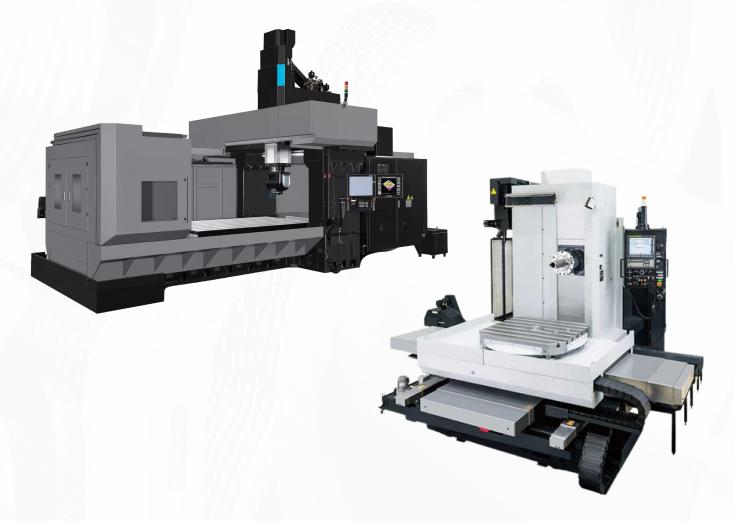
Used in cooling and air conditioning systems to maintain temperature -Employed in processing, movement, and automation tasks - Utilized for water pumps - Provides precise control over motor speed with smooth start-up and stopping.

#### WHY WE ARE UNIQUE: $\odot$

- Provides full speed control while also saving energy.
- Reduces inrush current.
- Extends the lifespan of equipment.
- Low maintenance requirements and easy installation. •
- Operates with 97% efficiency of the rated capacity.

## ATHE AND METAL SHAPING DEPARTMEN

The lathe is one of the most widely used mechanical manufacturing tools in metalworking, as it rotates various pieces around a fixed axis. Cutting tools are applied to remove excess material and refine the final product, allowing for precise shapes and dimensions for metal, wood, plastic, and other materials.





#### OUR PRODUCTS:

- Manual Lathes: Traditional machines used for shaping metals and woods into various sizes. Operated manually by securing the workpiece to the base and moving it in a circular motion for shaping.
- CNC Lathes: Programmable machines used for cutting shapes into precise sizes, operated via computer commands to execute various tasks. Used in advanced industries requiring high precision.
- Vertical Lathes: Machines used for shaping large parts, fixed vertically to facilitate cutting. Utilized in heavy industries.
- Horizontal Lathes: Machines used for shaping long, narrow parts such as shafts and columns. They operate longitudinally and laterally to create holes and are applied in heavy industries.
- Special Lathes: Essential tools in industries requiring specific standards and precise parts, such as nail production, wheel shaping, and for processing wood, plastic, and spherical shapes

#### LATHE APPLICATIONS:

- Machining metallic and non-metallic materials such as steel, iron, aluminum, and copper.
- Cutting cylindrical parts like shafts, bolts, discs, and axles.
- Metal Surfacing: Smoothing metal surfaces to prepare them for use.
- Surface Reshaping: Restoring damaged or worn-out components.
- Shaping materials longitudinally, laterally, and helically, creating holes, expanding, planing, and boring.

#### LATHE APPLICATIONS IN INDUSTRY:

Lathes are used in a wide range of industries, such as automotive manufacturing for engine parts, medical device production for precise surgical instruments, and in craft workshops for producing raw materials, among many other uses.



We have specialized experts including engineers and technicians with over 20 years of experience in providing industrial services.

#### MAINTENANCE AND TECHNICAL SUPPORT SERVICES:

- Providing complete repairs for very small to large electric motors, ensuring longer lifespan and lower costs.
- Replacing or repairing malfunctioning parts such as carbon brushes, bearings, and wires, and lubricating moving parts to reduce friction and wear.
- Providing technical support through live chat and video platforms.
- We use top-grade construction materials (iron and aluminum) and class F insulation, with detailed reports prepared by our experienced specialists using high-quality testing facilities.
- Offering motor control services by building control systems with minimal disruption, suitable for any application, whether agricultural or industrial.



#### GEAR MOTOR SERVICES:

- Regular inspection of the overall condition of the motor and gear, checking for oil and grease leaks, and ensuring the integrity of electrical and mechanical connections.
- Replacing damaged gears and bearings, repairing faulty mechanical connections, and repairing or replacing damaged wires and electrical components.
- Providing immediate technical assistance via phone or online, and dispatching technical support teams to the site when necessary.

#### WATER PUMP SERVICES:

- Our engineers use advanced tools to identify electrical and mechanical system faults in pumps and work to repair them to restore normal operation.
- Checking the operational performance of the pump under different operating conditions to ensure efficiency.
- Providing support via phone and email, and dispatching technical support teams to job sites for necessary inspections and repairs.

#### AUTOMATION CONTROL SERVICES:

- Planning and designing automation control systems according to client needs and technical specifications.
- Updating system components, sensors, and motors to improve performance.
- Writing programs needed to operate Programmable Logic Controllers (PLCs) and other control systems.
- Providing technical support via phone, email, or live chat, and using remote control tools to diagnose and solve problems from a distance

#### ELECTRICAL PANEL SERVICES:

- Our engineers update electrical panel components to improve performance, install new safety devices, and enhance technologies according to customer needs.
- Performing regular maintenance to ensure all electrical connections are properly tightened to prevent sparking, overheating, or other issues.
   Providing continuous technical support services around the clock to ensure
- the fastest possible resolution of urgent issues.

#### LATHE AND METAL SHAPING SERVICES:

- Fully equipped workshops for repairs and maintenance of technical issues with equipment, such as damaged parts and excessive pressure on machines, with mobile trucks available to visit your site for any sudden technical failures.
- Our team also handles scheduled maintenance and monitors notifications from your condition monitoring reports.
- Programming and updating control devices in lathes and metal shaping machines to ensure operation accuracy and improve productivity.

#### EQUIPMENT AND TOOLS SERVICES:

- Providing services for the supply and distribution of mechanical accessories, and securely and systematically storing them.
- Offering regular maintenance services and reliable original spare parts.
- Providing technical consultations for the correct selection of mechanical equipment parts.

#### ♀ QUALITY CONTROL SERVICES.









# CONTACT US

PHONE +966-540675689

EMAIL

sales@jaffa.sa Jaffapioneers@hotmail.com

## **OUR LOCATION**

Al-Khadriyah District - Dhahran-Jubail Highway -Dammam - Eastern Province

